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ABSTRACT

One of five modules in the administrative series of the 16-module series designed to train vocational education curriculum specialists, this module is intended for use in classes or individual study arrangements at the preservice or inservice level by students with varying amounts of experience in vocational education. (These modules are revised versions of earlier study guides--see note.) Introductory materials include an overview, instructions to the learner, detailed list of behavioral goals and objectives, and resources needed to complete learning activities. The module is divided into three sections, each based on one of the goals. The first section summarizes the major activities included in planning for a follow-up evaluation. Actual conduct of a follow-up study is the focus of section 2. Suggestions are provided for sampling, developing the data collection instrument, conducting the data collection, and processing and analyzing data. The third section provides guidelines for interpreting and communicating evaluation results. Each section follows a standard format: text, individual study activities, discussion questions, and group activities. A summary of the module follows. Appendixes include suggested responses to the study activities, a self-check, responses to the self-check, and recommended references. (YLB)

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VOCATIONAL EDUCATION CURRICULUM SPECIALIST

CONDUCTING FOLLOW-UP STUDIES AND COMMUNICATING EVALUATION RESULTS

Module 13

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NATIONAL INSTITUTE OF EDUCATION

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a project to field test vocational education curriculum specialist materials

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CONDUCTING FOLLOW-UP STUDIES AND

COMMUNICATING EVALUATION RESULTS

Module 13

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Introduction

This module discusses the evaluation of the long-term effectiveness of curricula in preparing students for responsible performance in the world of work. Vocational education evaluation should begin in the curriculum planning stage and continue during the developmental, early implementation, and post-implementation stages. Once a curriculum is implemented and found to be successful using in-school evaluation measures, follow-up of graduates working in their occupational fields is advisable. Information obtained from such follow-ups can be used to improve the curriculum.

The relatively recent call for accountability in education has necessitated evaluation of teachers, students, administrators, institutions, and curriculum. In order to participate in this process, the vocational education curriculum specialist must be familiar with the general principles of evaluation and must be able to conduct or supervise curriculum evaluations. He or she must also know how to use evaluation data to improve the curriculum.

Because follow-up evaluations identify needed curriculum revisions, this module is related to the modules in this series on needs assessment, curriculum design, development, and change.

Overview

The first goal of the module is to summarize the major activities included in planning for a follow-up evaluation. Emphasis is placed on clarifying the purpose of this part of a curriculum evaluation, establishing the scope and objectives of the study, and preparing a work plan.

Goal 2 focuses on the actual conduct of a follow-up study. Suggestions are given for sampling, developing the data collection instrument, conducting the data collection, and processing and analyzing data.

Goal 3 provides guidelines for interpreting and communicating evaluation results. The team approach to drawing conclusions and making recommendations is introduced, and a comprehensive evaluation report outline is presented. Communication strategies that will maximize implementation of recommendations are also described.

Instructions to the Learner

The Self-Check items and possible responses to them are found in the appendices. These questions have two purposes. First, before you begin work on the module, you may use them to check quickly whether you have already learned the information in previous classes or readings. In some instances, with the consent of your instructor, you might decide to skip a whole module or parts of one. The second purpose of the Self-Check is to help you review the content of modules you have studied in order to assess whether you have achieved the module's goals and objectives.

You can also use the list of goals and objectives that follows to determine whether the module content is new to you and requires in-depth study, or whether the module can serve as a brief review before you continue to the next module.

Goals and Objectives

Goal 1: Summarize the major activities included in the initial planning for a follow-up evaluation.

Objective 1.1: List the purpose for conducting a follow-up study as part of a curriculum evaluation.

Objective 1.2: Describe the process of establishing the objectives of a particular follow-up evaluation.

Objective 1.3: List and describe the contents of the work plan for a follow-up evaluation.

Goal 2: Summarize the major activities included in the conduct of a follow-up evaluation.

Objective 2.1: List guidelines for selecting or constructing a data collection instrument.

Objective 2.2: Describe the steps in conducting a follow-up evaluation, including (a) selecting the sample; (b) orienting data collection staff; (c) locating and orienting potential participants; (d) collecting data; and (e) following up nonrespondents.

Objective 2.3: Describe the process of processing, analyzing, and presenting data.

Goal 3: State basic guidelines for interpreting the results of a curriculum evaluation and for communicating these effectively.

Objective 3.1: Describe the steps involved in drawing conclusions and making recommendations from curriculum evaluation results.

Objective 3.2: Describe the major content elements that should be included in a report or presentation of curriculum evaluation results.

Objective 3.3: State basic guidelines for effective communication that should be followed in preparing a report or presentation of curriculum evaluation results.

Resources

In order to complete the learning activities in this module, you will need information contained in the following publication:

Wentling, T. L. Evaluating occupational education and training programs. Boston, MA: Allyn and Bacon, 1980.

GOAL 1: Summarize the major activities included in the initial planning for a follow-up evaluation.

Planning Follow-Up Evaluations

In addition to conducting an evaluation of the short-term outcomes of a vocational education curriculum, it is important to evaluate the long-term effects of curriculum on the knowledge and performance of graduates. To do this, curriculum specialists conduct follow-up studies of former students and their employers. Even if the use of a particular curriculum has produced significant gains for participants based on pre- and posttest scores, broader questions remain for the curriculum specialist: What are the long-term effects of the curriculum? Are the objectives and content of the curriculum enabling students to meet the demands of the working world? Does a student's mastery of course objectives indicate a likelihood of successful job placement and performance? How can the curriculum be improved?

Information collected from former students and their employers through follow-up studies can help answer these questions. Careful planning of follow-up studies can help assure that they provide adequate information.

Purposes of Follow-Up Studies

Wentling (1980) lists nine purposes for conducting a follow-up study of vocational program graduates. They are:

- determining career patterns,
- determining job availability,
- determining graduate mobility,
- determining program adequacy for purposes of job entry,
- determining program adequacy for purposes of entry into advanced training,

- determining the adequacy of ancillary services such as guidance or placement,
- emphasizing career objectives, and
- providing information for required reports.

Wentling also lists seven purposes for conducting an employer follow-up. These include:

- assessing the performance of former students,
- determining how specific program graduates compare with other graduates,
- obtaining recommendations for improving the program,
- determining recruitment practices,
- assessing competency lists,
- estimating worker supply and demand in particular occupations, and
- enhancing public relations.

Other purposes can be added to Wentling's lists. Follow-ups could be conducted to improve vocational instruction, or to demonstrate the value of vocational programs to groups providing financial support.

The information and suggestions provided in this module are appropriate to any one of these purposes, but the focus of this module will be restricted to those purposes of follow-up studies most central to the duties of a curriculum specialist: evaluation to improve the curriculum or judge its worth.

Establishing the Objectives of a Particular Follow-Up

The timing of a follow-up study may be influenced by a number of factors--the need to write a program rationale in order to receive federal or state aid; the raising of various types of questions about a curriculum by the Board of Education, teaching staff, or community members; or the curriculum specialist's personal determination that information is needed on a certain curriculum's long-term impact. For example, a new energy curriculum may have been implemented three years ago and the curriculum specialist may believe that it is time to conduct a follow-up study of its impact on graduates' job performance.

Because evaluations are often conducted to meet the needs of several individuals or groups, it is possible that the curriculum specialist may participate in a follow-up designed to meet more than one purpose. However, the general focus of this module will be on vocational education curriculum evaluation.

The process of establishing the objectives of a follow-up evaluation consists of three steps:

- Convening a planning meeting and selecting an evaluation director
- Defining the scope of the study
- Writing the general goal of the follow-up and listing primary and subordinate objectives

The initial step in conceptualizing a follow-up study is to convene a small planning meeting of selected school administrators, school board or advisory committee members, guidance personnel, teachers, and present vocational students. The purpose of the meeting is to choose a leader for the follow-up effort, define the scope of the study, and develop a list of study objectives, based on a consensus of the curriculum evaluation needs and concerns of the group.

The importance of a strong evaluation director--presumably the curriculum specialist--cannot be overemphasized. It is not assumed that this individual will possess technical expertise in all areas of evaluation since other individuals within the school system may be tapped for their specific skills. It is essential, however, that one individual, whose mind is firmly set on the goals of the evaluation, coordinate all staff activities, see that tasks are completed correctly and on schedule, and be committed to communicating evaluation results effectively and widely in order to maximize implementation of changes resulting from the evaluation's findings. Developing a spirit of communication and cooperation early among staff is also important, since it invariably results in a broader, more relevant research design, more efficient operation, and greater receptivity to and implementation of findings.

In regard to persons to be involved in the evaluation planning effort, it is often valuable to obtain the support of a pre-existing citizens' advisory committee or a panel of several prominent community members constituted specifically for this study. Since these individuals will be involved in the "world of work" and may be supervisors of large numbers of employees themselves, they will provide helpful input in the conceptualization of the study, the development and pilot testing of the data collection instrument, and the contacting of

employers. They will also be strong advocates of curriculum revisions based on study findings that promise to improve students' performance in the work setting.

The planning group must determine the scope of the follow-up study. The group must decide the specific vocational curriculum to be evaluated (e.g., the automotive mechanics curriculum implemented in 1975) and which groups of individuals will be asked to provide information to the follow-up. In a student follow-up, the findings will be enriched by efforts to include former students who successfully completed the vocational education curriculum of interest, "dropouts," and persons in other secondary curricula who took occasional courses within the targeted area. Former students who currently are working, who are enrolled in advanced educational institutions, and who are unemployed should all be surveyed, though some groups may be more difficult to locate or more reluctant to respond. It may also be helpful to survey persons of different ages and at different stages of job development who have completed the same curriculum or the two curricula to be compared (e.g., the old and the new automotive mechanics curricula).

The planning group will also need to decide whether the follow-up will assess students' perceptions of the quality and appropriateness of their training or employers' satisfaction with graduates' job performance. Often information should be sought from both students and employers.

Grasso (1979) refers to a particular vocational education follow-up study in which former vocational students rated their high school curricula as highly successful in preparing them for occupations. The same study, however, revealed that other measures of the program's effectiveness, including ratings by employers of students' on-the-job performance, were less than satisfactory. This suggests that graduates' ratings of their programs may not be the best method of evaluating vocational graduates' achievement of program objectives in terms of satisfactory job performance. The employer follow-up study is a more objective measure of this and, as such, is a useful complement to the student follow-up.

If the scope of the curriculum evaluation is to include an employer follow-up, the exact employer group to be surveyed should also be established. Generally, employers will be those currently supervising graduates of the particular occupational program of interest (e.g., employers of program graduates who studied the 1975 automotive mechanics curriculum).

A general goal for the follow-up should be written to summarize the discussion of the scope of the study. From the general goal of the study, primary and subordinate objectives

should be written. For example, a student follow-up evaluation focused on curriculum validation and revision might have the goal and objectives shown in Figure 1. An employer follow-up evaluation might have the goal and objectives shown in Figure 2.

Figure 1

Sample Set of Objectives for a Student Follow-Up Study Aimed at Curriculum Evaluation

Goal: To judge the overall value of the secretarial curriculum in preparing students for work, and to improve the curriculum as needed.

Primary Objective #1: To determine whether students are seeking and obtaining clerical and secretarial jobs.

Primary Objective #2: To determine whether students are advancing in these jobs.

Primary Objective #3: To determine whether students feel that they possess adequate on-the-job skills to perform satisfactorily as clerks, typists, secretaries, and stenographers.

Subordinate Objective #1: To determine whether students feel that they possess the technical skills needed in clerical/secretarial occupations (typing, shorthand, etc.).

Subordinate Objective #2: To determine whether students feel that they possess the general academic skills needed in clerical/secretarial occupations.

Subordinate Objective #3: To determine whether students feel that they possess the interpersonal skills needed in clerical/secretarial occupations.

Figure 2

Sample Set of Objectives for an Employer Follow-Up Study Aimed at Curriculum Evaluation

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Goal: To judge the overall value of the food service curriculum in preparing students for work, and to improve the curriculum as needed.

Primary Objective #1: To ascertain employers' expectations for entry-level food service workers.

Subordinate Objective #1: To obtain a description of the job (containing a list of tasks).

Subordinate Objective #2: To obtain a list of personal qualities and job skills considered most important in a person entering the job.

Primary Objective #2: To determine whether graduates possess adequate on-the-job skills to perform satisfactorily as short-order cooks, food preparation workers, waiters and waitresses, etc.

Subordinate Objective #1: To determine whether students possess the technical skills needed in these occupations (buying provisions, meal planning, food preparation, etc.).

Subordinate Objective #2: To determine whether students possess the general academic knowledge needed in these occupations (reading, computation, etc.).

Subordinate Objective #3: To determine whether students possess the interpersonal skills needed in these occupations.

Primary Objective #3: To ascertain employers' satisfaction with graduates of this particular commercial home economics curriculum.

Subordinate Objective #1: To determine how graduates of this curriculum compare to graduates of similar curricula and to persons with no prior vocational training.

Subordinate Objective #2: To obtain specific suggestions for changes in this vocational curriculum.

The preparation of specific objectives for the follow-up is a crucial task in planning for the conduct of the evaluation. The discipline necessary to state detailed subordinate objectives will be rewarded when the task of selecting or developing data collection instruments is initiated. It is necessary to have a comprehensive set of subordinate objectives that reflect the curriculum revision decisions for which the follow-up must provide data. In this way, the data collection instrument can be designed to collect the necessary information. Primary and subordinate objectives should be approved by the planning groups that helped determine the scope of the evaluation.

Preparing the Work Plan

The importance of a work plan that outlines the goals and objectives of the study, the tasks and products involved, and the personnel and resources required and that links these to a detailed schedule of completion dates cannot be overemphasized. A work plan serves to guide the daily activities of all staff over the course of the evaluation. It also informs interested persons of intended activities, and focuses the attention of all to the ultimate goals and products of the effort.

The work plan should include specific information for each task necessary to complete the follow-up evaluation. In general these tasks include:

1. Defining the goals and objectives of the evaluation
2. Preparing a work plan and obtaining approval to proceed with the study
3. Selecting the method of data collection
4. Selecting or constructing and pilot testing the data collection instrument(s)
5. Selecting the sample
6. Orienting the data collection staff
7. Locating and orienting potential participants
8. Collecting the data
9. Contacting nonrespondents
10. Processing, analyzing, and presenting data

11. Drawing conclusions and making recommendations

12. Developing a strategy for communicating evaluation findings

13. Preparing an evaluation report or presentation.

In developing an overall work plan for the study, the following elements should be included for each task:

1. Goals and primary objectives. Linking this information to the more practical elements of the work plan helps ensure that the ultimate uses of the study findings are kept in mind as the individual tasks of the study are carried out.

2. A list of tasks. It is helpful to arrange project tasks in flowchart form for easy reference. Tasks should also be defined in greater detail elsewhere, with subtasks enumerated as appropriate. In the data collection phase, for example, several waves of nonrespondent follow-up are needed; and during data processing, several steps are also required.

3. Products of each task. Products may include reports; data collection instruments; letters, names, and addresses of sample participants; and publicity items.

4. Completion dates for tasks. Dates should be clearly defined to facilitate coordination of staff schedules; to permit avoidance of holidays and other busy times of the year for data collection, if possible; and to allow efficient cooperation with off-site services such as computer facilities.

5. Individual(s) responsible. These may include (by job title) administrators, Board of Education members, teachers, guidance personnel, support staff, and current or former students; and (by function) study director, persons to design instruments, data collectors/processors/analysts, persons to locate sample participants, individuals responsible for project publicity, clerical and secretarial staff, and computer and printing staff.

6. Resources needed. These may include staff and consultant salaries, supplies and operating expenses, work and storage facilities, and computer time.

A work plan summary can be prepared by listing these elements as column headings across the top of a sheet of paper and then filling in the columns with the appropriate information. The work plan summary, along with a brief rationale paragraph stating why and how the evaluation was conceived, by whom, and the curriculum and population to be studied, should be submitted to the appropriate administrative officer or board in order to secure project approval and administrative and financial support.

Selecting the Method of Data Collection

An important decision in preparing the work plan is selecting an appropriate method of data collection. The methods that may be used include: personal interview, telephone interview, and mail questionnaire.

Personal interview. The advantages of the personal interview are that: it results in a high rate of response; it is very effective in developing public relations; and it allows for collection of more detailed information from respondents through interviewer probes. Disadvantages of this method include increased expenditures in terms of staff time, staff salaries, and travel costs. Additional time is required for supervisory personnel in locating and training interviewers; for interviewers in locating and talking with participants; and perhaps for data processors and analysts. Data analysis is particularly difficult when staff must evaluate and classify explanatory responses. Travel costs for face-to-face meetings with persons living out of town or out of state are also substantial.

Telephone interview. The telephone interview has many of the advantages of the personal interview. The rapport established through personal phone contact results in high participant cooperation and ability to obtain unambiguous and comprehensive responses to items. The prime disadvantage here, too, is the high cost of staff training, long-distance phone calls, and data processing. These two methods are probably most valuable when smaller samples are being used, when the development of good public relations is of high priority, or when low motivation levels of the target population are suspected.

Mail questionnaire. The mail questionnaire is, on the other hand, a lower-cost method of data collection that is effective for contacting persons in a wide range of geographi-

cal locations. Because mail questionnaires are more impersonal in nature, certain information can actually be obtained more readily through this method, such as information about participant income. However, participant responses to items cannot be readily clarified or expanded, and the mail follow-up generally has a lower rate of participant cooperation. Even with its disadvantages, the mail questionnaire is generally the preferred method of data collection in follow-up studies. Use of this method assumes that a more intensive strategy for securing respondent participation will be included in the work plan.

The pros and cons of each of these data collection methods should be weighed against the purposes and information needs of the study, the size of the sample, and the resources available. The nature of the data collection instrument will vary according to the method selected.

Individual Study Activities

1. Read pages 140-146 and pages 182-189 in Wentling, T. L. Evaluating occupational education and training programs. Boston, MA: Allyn and Bacon, 1980.

2. Assume you believe that a follow-up evaluation should be conducted. You think the follow-up should be aimed at improving the physical therapist assistant (PTA) training curriculum at the local junior college where you are employed as a curriculum specialist. You want to convene a meeting to get planning for the study off the ground.

   a. List the types of individuals you will invite to the meeting. Briefly state why you will invite them.

   b. List the types of significant decisions you hope will result from the meeting.

3. Prepare a flow diagram illustrating how the tasks that should be included in the work plan of a follow-up curriculum evaluation could be scheduled and coordinated. Put each task in a box and draw arrows between boxes to indicate relationship between tasks. Let the time dimension run from left to right on your page to illustrate that a task is completed before those shown to the right of it and after those shown to its left.

4. The following are statements describing methods of data collection used in follow-up studies. For each statement, circle T if the statement is true and F if it is false.

   T F 1. An advantage of the mailed questionnaire is that you can contact a large number of persons (e.g., 100) with the least expenditure of time.

   T F 2. The personal visit permits gathering of information in more depth than the mailed questionnaire.

   T F 3. The telephone survey provides a means of checking and assuring the correct interpretation of questions.

   T F 4. The mailed questionnaire is likely to have a higher response rate than the telephone survey.

T F 5. Using the personal visit to conduct employer follow-up allows the evaluator to promote hiring of new program graduates at the same time follow-up information is being collected.

T F 6. An effective way to increase response rate is to follow up a mailed questionnaire with a telephone survey of nonrespondents.

T F 7. The telephone survey has similar advantages to the personal interview but is less costly.

T F 8. An advantage of the mail questionnaire is that much of the data processing can be done by clerical personnel, thus freeing the evaluation director for other activities.

Discussion Questions

1. What student or employer follow-up studies are you personally familiar with? What were the goals of the study and how was it designed? Did the study achieve its goals? What actions were taken based on the recommendations presented? What problems in administration of the study were encountered, and how were these solved?

2. Are you familiar with any school districts where vocational follow-ups have not been conducted in the past five years? Based on the information you have of a particular vocational education curriculum (obtained from informal contacts with former students and their employers in the community), what degree of success do you think the curriculum is having in helping students perform well in their later jobs? Is your current information sufficient to draw reliable conclusions? Discuss whether a systematic follow-up study would be useful and feasible at this time.

Group Activity

In groups of four or five, choose a particular vocational education curriculum and then plan a student (mail) follow-up study. The emphasis of this activity is on research design and planning of tasks and procedures. No actual data collection will be conducted in this exercise.

Define the group of former students you want to survey. Develop primary and subordinate objectives for the study. Determine the method of data collection you will use.

Then complete the work plan form provided, enumerating tasks, products, time schedules, and responsible staff. In the space labeled "Individual(s) Responsible," give the functional title of school district personnel who might perform each task. Develop a realistic time schedule for all tasks based on the amount of time you think it would take school personnel to complete each task in a full-blown version of this study.

Your work group should complete these products:

- A paragraph describing the purpose of your study and the proposed study participants
- A list of primary and subordinate objectives
- A project work plan summary (time/task/talent chart) (form provided)

WORK PLAN

Tasks and Subtasks (number each major task)	Products of Tasks	Amount of Time Required for Each Task	Individual(s) Responsible for Each Task

GOAL 2: Summarize the major activities included in the conduct of a follow-up evaluation.

Conducting a Follow-Up Evaluation

The preceding goal discussed the planning of a follow-up study of students and their employers. The focus of this goal is on actually conducting the follow-up study. Tasks required to conduct the study include: selecting or constructing a data collection instrument; selecting the sample of study respondents; orienting data collection staff; locating and orienting potential participants; collecting the data; following up nonrespondents; and processing, analyzing, and presenting the data.

Selecting or Developing the Data Collection Instrument

The steps required in developing a data collection instrument include:

- identifying existing data collection instruments;
- selecting the appropriate existing instrument or developing a new one; and
- pilot testing the instrument.

Existing data collection instruments useful in follow-up studies can be located through any combination of the following sources:

- The director of the State Research Coordinating Unit for Vocational Education (existing in all 50 states)
- The State Department of Education, Division of Vocational-Technical Education
- A school administrator or director of vocational education in local school systems (your own district, a nearby system, or a large urban system within the state)

- Industrial psychologists in universities and industry

- Literature searches of computerized data bases (such as ERIC, Dissertation Abstracts, Psychological Abstracts, Sociological Abstracts, and the Library of the National Center for Research in Vocational Education)

- Source books of data collection instruments, such as Buros Mental Measurement Handbook (1978)* and a handbook developed at the National Center for Research in Vocational Education by Gray, Abram, McKinney, and Billings called Vocational Education Measures: Instruments to Survey Former Students and Their Employers, 1978.

The curriculum specialist should use criteria such as those listed below to evaluate existing instruments for possible use.

- Is the instrument readily available at minimal cost?

- Is the instrument appropriate to the target population of the study (e.g., is it suitable to following up graduates of the auto mechanics program)?

- Is the instrument written to meet the same goal(s) and objectives as those of the proposed study, and does it have sufficient coverage on topics of interest?

- Is the instrument suitable for the time frame of the study and the method of administration selected (e.g., one-year follow-up survey by mail)?

- Is the item format suitable for efficient collection of data, and is the style clear and concise?

- Can participants complete the instrument in a reasonable amount of time?

- Can data be processed in an easy, cost-effective manner?

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* This handbook contains primarily knowledge and interest tests, but it also lists a few questionnaires designed to measure employees' job satisfaction and performance.

- Is information available about the instrument's reliability? (Will responses to items be the same if the instrument is administered a second time to the same group of respondents?)

- Is information available about the instrument's validity? (Is its content representative of the topic area to be measured?)

An existing instrument should be chosen for use in a particular follow-up only if it efficiently collects the information necessary to meet the goals and objectives of the study. Often, existing instruments will be inadequate to use "as is." Their general format may be satisfactory, but it is likely that only certain items will match the planned study's objectives. If copyright permits, specific items may be borrowed from one or more instruments and assembled, along with original items, into an instrument that is totally suitable for the follow-up study to be performed.

In constructing the data collection instrument, the purpose of the evaluation should be held clearly in mind, and items should be designed specifically to provide information to meet one of the stated objectives of the study. Generally, items should be grouped by objective (e.g., all items related to a former student's general job history should appear together). The instrument should be arranged with the most important objectives first, or according to another logical sequence. While keeping the instrument as short as possible, the evaluators must make sure that sufficient information is obtained so that behaviors may be explained as well as described. For example, besides obtaining the information that a particular individual was unemployed for a year after high school, the instrument should contain an item documenting why this occurred.

The instrument should be reviewed by those people who will process and analyze the study results before its final content and format is set.

The format of items (dichotomous, multiple-choice, rating, ranking, and open-ended items) should be determined from the type of information desired. Varying item format or, at times, simply varying wording among consecutive items with the same format is important for retaining respondent interest and attention to the precise meaning of each question.

Also, if the evaluation is part of a multiphase study to be conducted over several years, care should be taken to collect identical or comparable information using the same or similar items for each phase of the evaluation. Otherwise, it will be impossible to make comparisons between years.

Two types of instrument directions are necessary. Overall directions should be presented at the beginning of the instrument. These should state the purpose of the survey and, if mailed, the desired return date for the instrument. Individual directions should be placed within the instrument at those points where item format changes. These should orient the respondent to answering procedures.

Questionnaires that are attractive, use high quality paper, have a spacious layout, and are clearly printed will encourage a high response rate. The use of colored paper has also been shown to increase the response rate. Items should be readable without having to turn the questionnaire sideways. If printing is to be small, the use of elaborate type faces should be avoided. Other problems related to instrument appearance can be avoided if the evaluator simply imagines his or her own reaction to a messy, unreadable, and dull questionnaire.

Other strategies for maximizing response by mail include placement of difficult questions at the end of the instrument and avoidance of items requesting information that is already available from other sources or that may possibly be considered confidential or irrelevant to the purpose of the study. One such "sensitive" question might be an item asking the respondent's religious affiliation.

A pilot test of the instrument with a few selected individuals before administration to the target population will point up lack of clarity in directions, unclear terminology, problems of interpretation, and weaknesses in the format. It will also serve as a tryout of procedures for instrument administration and data processing. Revisions of the instrument should be made as needed after the pilot test.

In choosing an existing instrument or developing a new one, the following guidelines should be considered:

- Keep in mind the overall goal(s) of the evaluation
- Develop/select items to meet specific subordinate objectives
- Group related items and arrange groups in a logical sequence
- Word items clearly to avoid misinterpretation
- Keep items and options concise, and vary their format to enhance interest

- Avoid asking unnecessary, confidential, or "sensitive" questions

- Provide clear instructions on how to respond to items

Additional guidelines relating specifically to the mail questionnaire include the following:

- As much as possible, use items in which a limited number of options are listed (i.e., dichotomous, multiple-choice, ranking, and rating items)

- Use open ended items wisely (e.g., as summary questions, to collect any additional data, or in cases in which possible answers to a question are not easily predicted)

- Design the instrument to have an orderly layout and attractive appearance

Selecting the Study Sample

Depending on the purposes of the study, the evaluator may want to survey graduates of a particular vocational program or their employers or both groups. Based on the size of the target population and the scope and resources of the study, it may be appropriate to choose a sample of the population to participate in the follow-up. If random sampling techniques are used, study participants are likely to be truly representative of the whole target group.

In random sampling, every member of the population has an equal chance of being selected. The sample is chosen through one of several random selection methods--by lottery, by flipping a coin, by randomly selecting names from an alphabetical list, or by randomly assigning each person in the target group a number and then picking numbers from a table of random numbers. Because selection is based on chance, the assumption is made that, given a sufficient number of individuals, persons selected will possess the same variety of psychosocial behaviors, academic ability and motivation, and job performance and satisfaction as the entire population. Thus, generalized statements made about the whole group based on data collected from the sample can be defended. According to Young and Schuh (1975), for populations of 600 to 5,000, a sample size of five percent is considered appropriate and safe. For populations of less than 600, at least 30 randomly selected respondents should be included in the study.

When subgroups within a population are of interest (e.g., males and females), the population should be broken into appropriate subgroups, and a random sample of each subgroup, known as a "stratified random sample," should be taken and included in the follow-up study.

Sampling procedures should be documented carefully so that the evaluator can argue convincingly in the evaluation summary that the persons surveyed were indeed representative of the entire target population.

Orienting Data Collection Staff

Data collection staff will need to be trained to locate and contact study participants. Staff members should learn strategies for locating people and for keeping records once individuals are contacted and enrolled in the study.

If the interview method is used, it may be necessary to instruct staff members in proper and effective procedures for interviewing, including introducing the survey, asking questions, probing for clarification and additional information, and recording responses. A standard introduction to the interview should be developed ahead of time that indicates the survey purpose and is aimed at establishing rapport between interviewer and respondent. Interview personnel should be able to present this introduction smoothly and also should be entirely familiar with the survey instrument prior to conducting the first interview.

Locating and Orienting Potential Participants

Once the names of the individuals who will participate in the study have been listed and the data collection staff has been trained, the current location of participants must be determined.

Former students may have moved several times since high school. Their addresses may be obtained through a variety of sources such as school counselors, parents, post office records, and phone directories.

The orientation of students is a crucial step in securing their participation in the study, since many factors relating to lack of motivation and lack of comprehension encourage nonresponse. One orientation method that raises students' motivation toward participation in follow-up studies and improves availability of address information is to meet with students

personally prior to their graduation from high school. At this time, students may be informed of the district's interest in periodic follow-up evaluation of the curriculum to "help improve the job preparation of later students." Students may also be given the dates and details of specific projected studies, if they are known. In addition, students can be asked to fill out a card containing their present address, the name and address of their employer, and the name of one or two persons who will be able to provide information about their whereabouts in future years if they should change addresses. If this orientation is not performed before graduation, a more detailed and convincing orientation must be given to graduates when they are contacted later to participate in the follow-up study.

The first steps in the administration of an employer follow-up survey are to identify former students whose employers will be surveyed and to obtain the names and addresses of their employers. Not all program graduates will be employed and not all those employed will be working in their field of training. In fact, the number of graduates employed in their field (and thus the number of employers to be contacted) may be significantly less than the total number of program graduates in the target population. The size of this number will determine whether sampling of employers is needed.

Names and addresses of employers may be obtained through the following sources:

- Follow-up questionnaires administered to program graduates in a concurrent or recently completed study*
- Phone calls or letters to program graduates or their parents
- Records of the school placement office

The orientation of employers, as of students, is important in securing high participation rates. Employers should be informed of the purpose of the study and the intended uses of the findings, convinced that their personal input is valuable, and assured that their participation will not involve large amounts of time. The inclusion of a letter from a well-known member of the business community endorsing the study or a

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* An item eliciting name and address of present employer should be included on these questionnaires. Graduates should also be asked whether their employer may be contacted for further information.

reference to his or her name in a telephone or personal contact may encourage employers to cooperate in the survey.

Collecting Data

In follow-up studies conducted by mail, the following items are usually included in the first mailing: a personalized letter explaining the purpose of the study and the uses to be made of the findings; a questionnaire coded with the individual's ID number (solely for keeping track of nonrespondents); an incentive to participate, if desired (e.g., endorsement by a well-known school or community figure, news clipping about the study, or promise of a small gift to those returning questionnaires); and a stamped, self-addressed envelope. In the letter, potential participants should be assured of the confidentiality of the study.

Second and even third mailings should be made to ensure a high response rate. With several steps in the data collection phase, a well-organized record-keeping system is crucial to keep track of who has responded, who has been followed up, and when these steps occurred. Figure 3 provides some tips on the mechanics of a mail follow-up study of former students.

Contacting Nonrespondents

The problem with nonrespondents is that, typically, they represent a different sort of people than respondents. Therefore, vigorous efforts should be made to obtain their cooperation; follow-up mailings and reminder phone calls with attempts to collect the information verbally are appropriate. An 80% return rate is considered necessary to reduce the possibility of data that are nonrepresentative of the entire population (Wentling, 1980).

If this rate is not obtained through diligent follow-up of nonrespondents, a smaller sample of nonrespondents may be contacted and their responses compared to those obtained from the regular respondents. If little or no difference exists between responses of these two groups, it can be assumed that the data are not biased. If significant differences are noted, nonrespondent data should be weighted according to statistical weighting procedures and then entered into the total data pool in an effort to correct for the existing bias. In this case, aid should be solicited from an individual possessing special expertise in this area.

FIGURE 3

Steps in Conducting a Data Collection by Mail

1. Maintain former students' current mailing addresses and phone numbers in a card file to permit additions, deletions, changes, or sorting by program.

2. In addition to student information, include the name and address of parent or another individual who will know student's current address.

3. If desired, obtain from the post office (for a fee) the new forwarding addresses of students who have moved.

4. If the survey is not anonymous, type the student's name on the form. If it is to be anonymous, number the questionnaire with a code to represent the respondent so you will know who has returned forms and who has not.

5. Use different colored paper for different programs, if data are to be sorted by program.

6. Time the first mailing so it will arrive mid-week, if possible. Watch out for holidays when mail might be delayed.

7. As questionnaires are returned, check them off on the card file and pull the card to file under "returns."

8. Some questionnaires will come back marked "undeliverable--no known address." (The post office only keeps forwarding addresses one year.) To update addresses for this group, phone parents, check with instructors, contact last known employer, or check with younger brothers or sisters still in school.

9. As you are able to update addresses, record them on the student cards and mail the questionnaires. Keep these cards separate--make a notation about when the questionnaire was sent to the correct address.

10. Two weeks after the first mailing, send a second questionnaire and an appropriate cover letter to all nonrespondents whose letters were not returned by the post office.

11. Depending on the number of responses obtained two weeks after the second mailing, you may have to send out a third mailing (again with a questionnaire and an appropriate cover letter) or use a telephone survey to contact those who have not replied.

12. Be sure also to make second and third mailings as needed to the students who had corrected addresses.

Processing, Analyzing, and Presenting Data

The development of the data processing and analysis plan should take place at the same time as the development of the data collection instrument. The staff members coordinating these tasks should begin by responding to the following questions:

- Should data from certain subgroups be compared in the evaluation report (e.g., graduates versus dropouts, class of 1976 versus class of 1977, males versus females)?

- Which items relate to the same topic area or objective and therefore should be analyzed together? (For example, data from all items relating to "graduates' present activity" could be analyzed together and a summary table could be developed as in Figure 4.)

- What type of data analysis procedures should be used? (Usually these include simple tallies, percentages, and averages. Examples of these appear in Figure 5. For cases in which more sophisticated statistical manipulations are needed, a data analysis expert should be consulted.)

- How should data summaries be presented? (Methods of presenting findings are broadly subdivided into tables--numerical and statistical presentations--and figures--visual presentations. A few samples appear in Figure 6.)

Once these decisions are made, the data processing and analysis phase consists of the following steps:

1. Verify all instruments for completeness and accuracy. (Errors or omissions should be corrected by data processing personnel, or the instrument should be returned to the appropriate respondent for correction.)

2. Sort instruments into subgroups, if comparative data are desired.

3. Classify and group all raw data according to topic area and method of statistical analysis to be used.

4. Record data on coding sheets for hand tabulation or format data for keypunching or keytaping for computer processing. (If the survey involves fewer than 100 individuals, hand tallying of results is probably the

most efficient means of summarization. Simple hand-tabulation sheets may be made by cutting up a blank questionnaire and pasting one or two questions on a page. Responses of all participants can then be recorded on the sheets.)

5. Organize and record data obtained from open-ended items (one of the most challenging steps).

6. Conduct appropriate data analysis procedures manually or by computer. (Averages, percentages, or more sophisticated statistical tests should be calculated based on the predetermined data analysis plan.)

7. Develop clearly labeled data summaries and displays (e.g., tables and figures) to present findings.

8. Store or dispose of raw data from tabulated questionnaires as desired.

Figure 4

Present Activity of 1979 Graduates of Drafting Program

Present Activity	Percent of Graduates Reporting Each Activity		
	Male	Female	Total
EDUCATIONAL	*41*	*49*	*44*
Vocational School	20	18	20
Community College	5	6	5
4-Year College or University	12	22	15
Apprenticeship	2	1	2
Other Education	2	2	2
EMPLOYMENT	*85*	*83*	*85*
Unemployed	6	10	7
Homemaker	0	9	3
Military	8	2	7
Paid Employment in Drafting	53	40	49
Other Paid Employment	18	23	19
OTHER ACTIVITY	*2*	*2*	*2*
TOTAL RESPONSES	*(185)*	*(73)*	*(258)*
TOTAL PERSONS REPORTING	*(144)*	*(54)*	*(198)*

NOTE: This table is a summary of data from several items on a questionnaire relating to "vocational graduates' present activities." Because many graduates were engaged in more than one activity, Total Responses exceed Total Persons Reporting. The number of responses or persons is indicated in parentheses.)

Figure 5

Data Analysis Procedures Useful in Follow-Up Studies

Tallies

How many full-time jobs have you had since graduation from high school?

	Number of Persons Choosing Each Option (N = 50)
___None	3
___1	17
___2	19
___3	6
___4	4
___5 or more	1

Percentages

What is the highest salary you have earned on a full-time job since leaving this vocational program?

	Number of Persons Choosing Each Option (N = 50)		Percentage Choosing Each Option
___$2.49 or less/hr	2		4
___$2.50 to $3.49/hr	11		22
___$3.50 to $4.49/hr	17	× 2 =	34
___$4.50 to $5.49/hr	11		22
___$5.50 to $6.49/hr	6		12
___$6.50 or more/hr	3		6

Averages

How well did the curriculum prepare you to use a table saw?

		Number of Persons Choosing Each Option (N = 50)			Average Rating by Students
Very poorly	1	3		3	
	2	0		0	
	3	1		3	
	4	10		40	
Satisfactorily	5	× 9	=	45	5.4
	6	13		78	
	7	11		77	
	8	3		24	
Very well	9	0		0	
				50/270 = 5.4	

Figure 6

Methods of Presenting Data Summaries
(From a Student Follow-Up Study)

1. Tables

A. The table below presents simple tallies and percentages of students receiving certain starting salaries.

Salary Earned in First
Full-Time Job After Graduation

	Number of Persons	Percent of Students
$2.49 or less/hour	8	24
$2.50 to $3.49/hour	14	42
$3.50 to $4.49/hour	6	18
$4.50 to $5.49/hour	2	6
$5.50 to $6.49/hour	2	6
$6.50 or more/hour	1	3

B. In the following table, scores were averaged on four items regarding students' opinions of certain aspects of the industrial arts (wood shop) curriculum, and results were summarized in a single table.

Ratings Given to Wood Shop Curriculum by
Vocational Education and Non-Vocational Education Students

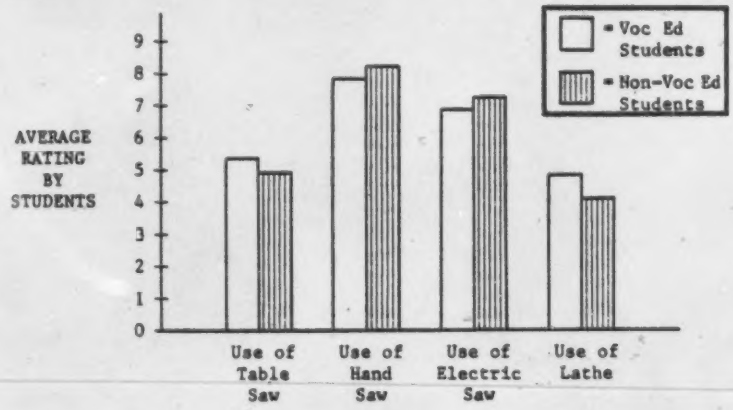
Area of Wood Shop Training	Average Rating by Voc Ed Students	Average Rating by Non-Voc Ed Students
Use of table saw	5.4	4.9
Use of hand saw	7.8	8.1
Use of electric sander	6.9	7.3
Use of lathe	4.9	4.1

(continued)

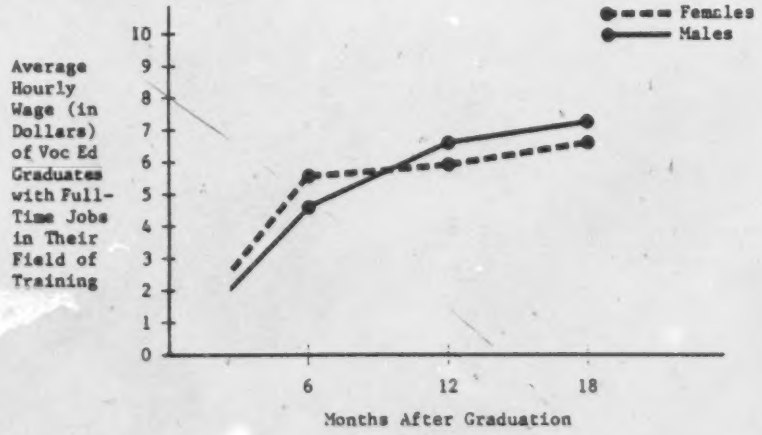
Figure 6
(continued)

2. Figures

A. Often, the same data that are presented in tabular form can also be presented as a figure. Below, the same data that were presented in the table above--the average ratings given by two groups of students to four aspects of the wood shop curriculum--are presented as a bar graph.



B. Line graphs are also an effective method of presenting data, particularly in illustrating trends over time, as in the sample below.



Individual Study Activities

1. Read pages 147-178 and pages 189-208 in Wentling, T. L. Evaluating occupational education and training programs. Boston, MA: Allyn and Bacon, 1980.

2. The following statements describe types of item formats used in data collection instruments. For each statement, circle T if the statement is true and F if it is false.

T F 1. For obtaining several bits of information, multiple-choice items are more economical in terms of time and space than dichotomous items.

T F 2. Dichotomous response items are used for cases in which more than one option may apply to respondents.

T F 3. The open-ended item format is one of the most commonly used because it enables evaluators to collect large amounts of information in a highly efficient manner.

T F 4. In a well-written ranking item, respondents are asked to rank the importance of long lists of closely related items (e.g., instructional methods).

T F 5. Rating items are useful when the evaluator desires to compare students' opinions of various aspects of a particular curriculum.

T F 6. Follow-up study instruments generally contain items of only one format, chosen based on the particular informational needs of the study.

3. Presented below is a list of tasks to be completed for an employer follow-up study conducted by mail. On the right is a list of products, all of which are to be developed in the course of the study. Match products to the appropriate task; list them in the order of their development. (Each task involves completion of one or more products.)

Tasks	Products
___ 1. Define the purpose of the study	A. Written sampling plan
___ 2. Prepare a work plan	B. List of addresses and phone numbers of former students
___ 3. Select/construct ___ (mail) data collection instruments	C. List of procedures for handling information from questionnaires
___ 4. Select and locate the ___ participants of the study ___ (employers) ___	D. Introductory letter explaining study
___ 5. Orient participants and ___ data collection staff; collect data	E. List of goals and objectives
___ 6. Process and analyze ___ data	F. List of procedures for conducting mail survey
	G. Time/task/talent chart
	H. Summary tables and figures
	I. Completed staff instrument evaluation forms
	J. List of names and addresses of employers of former students
	K. 20-item printed questionnaire
	L. List of names of former vocational students

4. Summarize the data given below in response to the following question in both a table and a figure.

> Question:
>
> How often do you use the training you received in your vocational program on the job? Check one response.
>
> ___ Frequently ___ Occasionally ___ Never
>
> Data:
>
> 11 students marked "Frequently"
> 36 students marked "Occasionally"
> 3 students marked "Never"

Discussion Questions

1. Read the following paragraph describing the place of follow-up studies in the 1976 federal vocational education legislation:

> Student and employer follow-up studies are called for in the Vocational Education section (Title II) of the Education Amendments of 1976 (P.L. 94-482). Section 112(b)(1) of this legislation requires that states evaluate "the extent to which program completers and leavers (i) find employment in occupations related to their training; and (ii) are considered by their employers to be well-trained and prepared for employment."

Then discuss the similarities and, more importantly, the differences between the purposes of local follow-up studies (as described in this module) and the purposes of studies conducted by state education agencies in response to federal evaluation requirements as indicated above. How would the differences affect the composition of state and local data collection instruments?

2. Your group wants to conduct a one-year student/employer follow-up evaluation of the high school electronics curriculum. Your primary objectives are (1) to determine whether graduates are getting jobs in the electronics field and (2) to judge the value of the curriculum in pre-

paring students for these jobs for the purpose of curriculum revision. You want to conduct the survey by mail and to process data by hand since no computer is available. One of the instruments you are considering to collect data from students is the Virginia Department of Education's Student Questionnaire, reproduced on the next page. To decide whether this questionnaire is appropriate for your use, evaluate it according to the following steps:

a. First analyze the instrument items and try to figure out the study objectives the instrument was designed to address. List primary objectives, subordinate objectives, and items relating to each subordinate objective. If, in your opinion, additional items are essential for complete coverage of the objective, make a note of them. Then determine whether a revised order of items is preferable. Decide whether the organization of the instrument can be improved--i.e., can items be placed in a logical sequence so that all items relating to a particular objective can be grouped together?

b. Then compare the instrument with the information provided above regarding follow-up of the electronics graduates, and explain whether you feel this instrument is appropriate to use in your study. If it is not totally suitable as is, can it be made suitable with minor revisions? Which ones?

VIRGINIA DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION
FOLLOW-UP (VERS 3)
Student Questionnaire*

DIRECTIONS: Please answer each question thoughtfully. A few questions may not apply to you. In such a case, mark the DNA (Does Not Apply) answer.

USE NO. 2 PENCIL. Erase errors completely. Do not make any stray marks.
Do not fold, roll, staple, clip, or mutilate this form.
Use the large self-addressed envelope to return the completed form.
No stamp is needed.

Examples of PROPER marks

Examples of IMPROPER marks

DO NOT WRITE OR MARK IN THIS AREA

1. At the present time, I am
   - O attending school
   - O not attending school

2. At the present time, I am
   - O employed as a civilian
   - O in full-time military service
   - O not employed but looking for work
   - O not employed by choice

3. At the present time, my employer is (please print)
   - O DNA

_____
Firm or Company
(If self-employed, write self)

_____
Firm or Company mailing address

_____
City State Zip

4. My supervisor is (please print)
   - O DNA

_____
Last name First name M.I.

5. My present job is (please print)
   - O DNA

_____
Title
and these are my duties:

_____

_____

6. I am paid by the
   - O hour
   - O week
   - O month
   - O DNA

7. My pay before deductions for the time period marked in Item 6 is (Darken the proper numbers.)

Dollars				Cents	

8. The average number of hours I work per week is (Darken the numbers that show the average number of hours you work per week.)

9. My present job is related to my field of vocational education training.
   - O Yes, it is directly or closely related.
   - O No, it is only remotely related or is not related.

10. I was able to get this job because of my vocational education training.
    - O Yes
    - O No
    - O DNA

REMEMBER TO COMPLETE QUESTIONS ON THE BACK OF THIS PAGE

*Adapted from the 1979-80 USERS MANUAL for the VERS by D. E. Elson and S. Gerken, Division of Vo-Tech Education, College of Education, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. ©

(continued)

VIRGINIA QUESTIONNAIRE, CONTINUED

11. At the time that I enrolled in a vocational education program,
- ○ I was able to sign up for the program I wanted most.
- ○ I made another choice because the program I wanted most was not offered.
- ○ I made another choice because there was not a space for me in the program I wanted most.
- ○ I was advised to enroll in a certain program because of my abilities.
- ○ My parents advised me as to which program I should take.
- ○ I made my choice because of a friend's recommendation.
- ○ I was assigned to the program.

12. Please rate your vocational education program on each item listed.

1=Poor 2=Fair 3=Good 4=Excellent

A	① ② ③ ④	Chances to develop technical knowledge needed for work
B	① ② ③ ④	Chances to develop mathematical skills needed for work
C	① ② ③ ④	Chances to develop clerical skills needed for work
D	① ② ③ ④	Chances to develop reading skills needed for work
E	① ② ③ ④	Chances to develop communication skills needed for work
F	① ② ③ ④	Chances to solve problems involving technical knowledge
G	① ② ③ ④	Chances to solve problems involving work attitudes
H	① ② ③ ④	Chances to solve problems involving organization of work
I	① ② ③ ④	Chances to solve problems involving human relations
J	① ② ③ ④	Teachers' interest in students
K	① ② ③ ④	Teachers' knowledge of the program
L	① ② ③ ④	Teachers' ability to provide appropriate learning experiences
M	① ② ③ ④	Career guidance and counseling services
N	① ② ③ ④	Job placement services
O	① ② ③ ④	Equipment and tools for students
P	① ② ③ ④	Condition of labs/shops
Q	① ② ③ ④	Overall value of the program to me in doing my job

13. My vocational training has made it possible for me to hold the following number of full-time jobs:
- ○ 0
- ○ 1
- ○ 2
- ○ 3 or more
- ○ My full-time jobs have not been related to my vocational training.
- ○ I have never had a full-time job.
- ○ DNA

14. My first full-time job after leaving my vocational education program
- ○ was related to my training.
- ○ was a direct result of my co-op experience.
- ○ was a direct result of my work/study experience.
- ○ was not related to my training because no job was available.
- ○ was not related to my training because I had a good opportunity in another field.
- ○ was not related to my training because I decided that I didn't want to do that kind of work.
- ○ DNA

15. My first full-time job related to my vocational education program is/was located
- ○ in my own home community.
- ○ in a nearby community.
- ○ in a distant community to which I had to move.
- ○ DNA

16. I was given help in finding my first full-time job after leaving my vocational program by the person(s) marked here. (Mark all that apply.)
- ○ vocational education teacher(s)
- ○ co-op teacher(s)
- ○ counselor(s)
- ○ other teacher(s)
- ○ job placement service at the school (college)
- ○ other employment service(s)
- ○ friend(s)
- ○ relative(s)
- ○ DNA

17. May we have permission to share the information on this form with your local school?
- ○ Yes
- ○ No

18. May we have permission to contact your employer for information concerning your vocational training?
- ○ Yes
- ○ No

Group Activity

In small groups, locate and interview one or two individuals who have been involved in conducting a follow-up study of vocational graduates. Your interview should cover the following topics:

- Formulation of study goals
- Development of work plan (i.e., general tasks required)
- Selection/development of the data collection instrument
- Sample selection
- Location and contact of participants and follow-up of nonrespondents
- Special problems encountered and solutions tried
- Findings of study
- Needs for additional follow-up studies

Write a summary report of the interview, including your judgments on strengths and weaknesses of the study.

Alternative forms of this activity include (1) inviting one or two persons to speak to the class, interviewing them in class, and then preparing a report as described above; or (2) reading a summary of a vocational student or employer follow-up study in the professional literature and writing an evaluative abstract. (Such reports are classified in the ERIC system under descriptors like "vocational follow-up," "employment patterns," and "occupational surveys.")

GOAL 3: State basic guidelines for interpreting the results of a curriculum evaluation and for communicating these effectively.

Interpreting and Communicating Evaluation Results

Once a curriculum evaluation has been conducted, conclusions must be drawn from study findings so that results may be utilized for program change. Following are the activities to be completed by the curriculum specialist once the evaluation itself has been conducted:

- Summarize background information and findings of the curriculum evaluation.
- Draw conclusions from findings and make general recommendations about future actions needed.
- Summarize conclusions and recommendations and circulate them for comment and corrections.
- Prepare evaluation reports for appropriate audiences in accordance with effective communication strategies.
- Develop specific solutions with instructional staff based on study recommendations and plan for implementation of recommendations.
- Monitor implementation of curriculum revisions.

The last two activities listed, developing solutions and monitoring their implementation, are outside the scope of this module, but are discussed in the module on evaluating vocational education curricula and in the modules concerning curriculum development and curriculum change. The remainder of this module describes a group process approach for accomplishing the first three activities and presents suggestions for preparing and disseminating effective evaluation reports, the fourth activity.

Guidelines for Drawing Conclusions and Making Recommendations

Using a group approach in interpreting curriculum evaluation results is advisable because it allows for a richness of professional perspectives and also serves to promote commitment to suggested changes. The group convened to draw conclusions and make recommendations should include representatives from the groups that might be affected by the findings of the study: school administrators, curriculum advisory committee members, guidance and teaching personnel, and present or former students. Staff members who have worked on the evaluation and other persons who may contribute valuable insights based on their background and experience should also be included.

The members of the evaluation committee should be prepared for their work prior to the group meeting. They should receive a general overview of the evaluation, including the goals and objectives, curriculum and population studied, data collection and analysis methodologies, and possible biasing factors. Providing a copy of the work plan and data collection instruments is also helpful for orientation purposes. The committee should also be informed about how the data interpretation session will be conducted.

Steps to be followed in the committee meeting for drawing conclusions will be similar to those listed below:

Discuss the background of the study and the specific tasks to be accomplished. At the beginning of the session, committee members should be invited to ask questions and make comments about the study's goals and methodologies and to make general comments about the potential use of study findings. Guidelines on how study conclusions and recommendations will be derived should also be presented and discussed.

Formulate a list of conclusions. The data collected in the study should be presented to the committee in the form of the tables and figurer developed by data analysis personnel. All data relating to a particular objective should be grouped together for easier interpretation by the committee.

Wentling (1980) suggests that committee members be encouraged to list positive conclusions based on the results first. Although this may seem to be a waste of time to some, it has definite benefits. Listing positive conclusions will reinforce the constructive purposes of the evaluation and help ensure that the curriculum's strengths are maximized and used to overcome its weaknesses.

Then conclusions pointing out program deficiencies may be listed. Depending on the amount of time allotted for the session(s), the amount of data collected, and the number of persons present, the group may be divided into subgroups, each of which will draw conclusions regarding a particular portion of the data related to a particular set of objectives.

Conclusions can often be drawn almost directly from instrument items. Take the following instrument item:

> What did you feel was lacking in your high school business training?

If many students felt that their training was lacking in the area of "office politics," a conclusion might read like this:

> Many students feel that their business training did not prepare them properly for the handling of "office politics."

Data on each instrument item related to a particular objective should be considered. A member of the group should be designated as secretary to record all proposed conclusions. When a list or lists of conclusions have been drafted, the group should evaluate their work.

Select the best conclusions and refine their wording. The following criteria can be used to assess proposed criteria.

- Is each conclusion compatible with a major objective of the evaluation?
- Is there sufficient evidence to support each conclusion?
- Does each conclusion represent the best possible interpretation of the data?
- Does each conclusion reflect the consensus of the group?
- Is each conclusion worded in a manner that is precise and pertinent to the curriculum being evaluated?
- Does the set of conclusions reflect all the data collected?

Based on these criteria, the group should determine which conclusions are most significant and most valid and should phrase each clearly and concisely. Although the group should strive for consensus on each conclusion, in some cases it may be appropriate to list "alternate explanations of the data" proposed by a significant minority.

Some of the study findings will be "inconclusive." The group should avoid the temptation to derive conclusions from every bit of available data, even when findings are statistically significant. Data may sometimes be statistically significant but not educationally significant, not important enough to require attention. On the other hand, the group may base tentative conclusions on "data trends" that did not reach statistical significance but that may suggest possible areas for further study.

Formulate a list of recommendations. Once the group has agreed on conclusions, it can proceed with its brainstorming, now with the goal of developing recommendations. At this point, recommendations should call for general changes in the curriculum and should be phrased using such action terms as "develop," "improve," "revise," "strengthen," and "add." A sample recommendation (based on the conclusion stated earlier) might be:

> Provide training in the area of personal relations for business students.

Recommendations might include adding or discontinuing units of instruction; instituting or revising prerequisites; totally revising curriculum objectives; modifying or expanding instructional materials, facilities, and equipment; and requiring new staff or additional staff training.

Select the best recommendations and refine their wording. The group should then review all recommendations by asking the following questions:

- Are recommendations related to major objectives of the evaluation?
- Are recommendations closely linked to conclusive findings?
- Do recommendations provide sufficient direction and suggest meaningful actions?

- Do recommendations suggest actions that are within the jurisdiction of the school district and that are feasible in terms of resources possessed?

Recommendations that do not warrant affirmative answers should be improved or deleted by the group. Then within each area of concern addressed by the evaluation, recommendations should be ranked in order of priority from the recommendation that is most important to the recommendation that least merits immediate attention.

At this point, a draft summary of the group's conclusions and recommendations should be prepared and circulated to appropriate staff for additions and corrections. The conclusions and recommendations should then be revised based on the input obtained.

Elements of the Evaluation Report

Once conclusions and recommendations have been revised or approved, the curriculum specialist should prepare the final version(s) of the evaluation report. Wentling (1980) notes that reporting is an important step in the evaluation process even though preparing a report may seem like an unnecessary burden after all the effort of planning and conducting an evaluation. The evaluation report is valuable because it provides a summary of what has been done and can aid in promoting recommended curriculum changes.

The evaluation report should clearly describe the planning and execution of the evaluation and conveniently list the conclusions and recommendations drawn from the study. The report should emphasize the significance of the results of the evaluation and call attention to the need to consider and act on proposed changes. The evaluation report, by documenting evaluation efforts, can provide background, guidance, and justification for future actions.

The evaluation report can also be a useful tool in obtaining support for curriculum improvements. If properly written, the report can help prevent people from focusing on the weaknesses of the curriculum by pointing out its merits and stressing the need to build upon past achievements. For these reasons, reports should be prepared and distributed to those who may be concerned about the focus of the evaluation as well as those who use the curriculum that was evaluated.

A good sample outline for any evaluation report appears in Figure 8.

FIGURE 8

Outline for the Curriculum Evaluation Summary Report*

I. Purpose of Evaluation
   - A. Evaluation goals and objectives
   - B. Benefits to be derived from the evaluation
   - C. Audience of report

II. Description of Curriculum Being Evaluated
   - A. Curriculum goals and objectives
   - B. Description of students
   - C. Description of program staff
   - D. Description of instructional methods utilized

III. Evaluation Design and Methodology
   - A. Target population and means of sample selection
   - B. Rationale for evaluation design
   - C. Schedule of events
   - D. Data collection methods
   - E. Data analysis methods
   - F. Limiting factors

IV. Evaluation Findings
   - A. Results by evaluation activity
   - B. Results by study objective

V. Evaluation Conclusions and Recommendations
   - A. Method of interpreting findings
   - B. Conclusions
   - C. Recommendations
   - D. Suggested methods of implementing recommendations
   - E. Further study needed

* Adapted from Wentling (1980) and Finch & Crunkilton (1979).

Section I of the report should contain a detailed discussion of the goals and objectives of the evaluation. The groups to be served by the study (e.g., vocational students and their employers) should also be described. The specific audience to whom the report is addressed should be described also so that the reader will feel responsible for absorbing information, reaching conclusions, and actively participating in implementing study recommendations.

In Section II, the curriculum being evaluated should be defined and described so that the reader may better understand the implications for actual school programs of recommendations made in the report. Descriptions of the socioeconomic background and age group, male/female ratio, and vocational orientation of the students are also important, as well as information about personnel and materials supporting the curriculum.

In Section III, when describing the evaluation design and methodology, the report writer should delimit the group of students or employers who provided evaluation data and explain why this group was chosen. Sampling strategies should also be discussed. The evaluation design should be presented, and an explanation given as to why this design was considered the most effective method of meeting the study goals. In addition, this section should include a discussion of the factors influencing the design of the study. Economic, legal, and time restrictions might be discussed here. A schedule of evaluation events should also be provided. The Work Plan developed early in the study could serve this purpose.

Data collection and analysis methods should be described so that the reader may determine whether conclusions are valid ones or whether poorly worded instruments, inconsistent methods of contacting respondents, or inaccurate statistical procedures render the findings untrustworthy.

Limiting factors that may have influenced the evaluation results should also be outlined. Wentling (1980) suggests discussing possible shortcomings of the evaluation and any limiting or constraining factors that are inherent in the results. It is better to present these factors directly than to allow them to influence the selection or presentation of results.

The presentation of evaluation findings in Section IV may be organized in several ways. If several evaluation activities have been conducted at the same time (e.g., student and employer follow-up studies), findings could be presented for each activity individually, with findings grouped by study objectives within the discussion of each activity. Results could also be grouped by evaluation objective. For example, findings

concerning student and employer assessment of job skills could be treated together. Finally, observations on relationships between findings may be presented. For example, you might note that students gave the overall vocational program an "above average" rating but rated most specific areas of the curriculum as "average" or "below average". More subjective findings may also be discussed here. For example, you might find that ex-students' salaries were high, but informal contacts with students during visits to employers suggested that the students' job satisfaction was low.

The procedures followed in drawing conclusions and making recommendations should also be explained in Section V. The final version of the conclusions and recommendations should be presented here along with suggestions for implementing study recommendations and conducting future studies.

Effective Communication Strategies

In preparing the evaluation report, the following steps should be followed:

- Identify the reporting considerations of the particular situation (decisions to be made and data needed; audience addressed; and resources available).
- Determine the depth of report content, type of format, and level of sophistication in accordance with reporting considerations.
- Use a logical presentation and clear, interesting writing style.
- Prepare and disseminate multiple versions of the evaluation report as appropriate.

Reporting considerations. Initially, the evaluator should review the types of decisions to be made as a result of the study. These may include whether a curriculum is successful, whether it should be continued or dropped, how it should be revised, and whether it should be disseminated to other locations. The information needed in a specific report will be directly dependent on the decisions to be made by the report reader.

Audiences may include such groups as educational researchers and senior administrators; board members, principals, teachers, and counselors; and employers, parents, and students.

Often, the curriculum specialist will want to address several audiences; then he or she should consider preparing several reports written at different levels of sophistication.

Available resources are also an important reporting consideration. A small budget may necessitate preparing a single, simple report that is distributed to a small number of individuals. Time may also be a consideration. Impending deadlines may require reductions in expectations regarding length or format. In all cases, however, content should be cut only as a last resort.

Content, format, and level of sophistication. Assuming that resources are sufficient, it is desirable to prepare a detailed report that includes all content shown in the outline in Figure 8. This report should document that the study was well designed and efficiently conducted and should present data that clearly support the study's conclusions and recommendations. This report, accompanied by a shorter executive summary of it, is particularly appropriate for communicating evaluation results to evaluators and senior administrators.

It might also be advisable to prepare reports and presentations specifically for other audiences. When preparing a report for principals, teachers, and counselors, the curriculum specialist may be able to shorten or eliminate sections of the outline because these groups may be less interested in details of how the study was conducted and more concerned with conclusions and recommendations that directly relate to them. Reports to parents, students, and employers may be shorter still, again with more emphasis on directly relevant findings than on evaluation methodology.

Possible formats for the evaluation report include a written report; an oral presentation; an audiovisual presentation; and a printed article in a journal or newspaper. The written report format is best suited to the presentation of a large body of facts to which the reader will want to refer at a later date. When the results of the evaluation will directly and critically affect a certain educational program, the written report format, which puts information "on the record," is the most appropriate.

An oral presentation can have greater immediate impact than a written report and allows for dialogue. However, when an oral presentation is used, widespread dissemination of information is less efficient, less material can be covered, and information cannot be stored for reexamination. The oral format is probably most suitable for presenting study results

to teachers and counselors at a meeting where discussion is planned and a written report is also provided.

The audiovisual approach, including the use of slides, overhead transparencies, moving pictures, or videotape, increases impact of presentation through sound, color, action, and immediacy. With the increasing availability of audiovisual equipment, this approach permits ready dissemination of information to other locations. However, this method is expensive, and does not allow dialogue with the audience.

Articles in newspapers, magazines, professional journals, or newsletters offer another means of communicating evaluation results. A short article is well suited for dissemination of information to persons who have a general interest in the program but little direct impact on it.

The level of sophistication refers primarily to the kinds of terminology and concepts used in the report and consequently to the audience for which it is appropriate. The level of sophistication can range from lay level, which requires little or no specialized knowledge for understanding the presentation, to an expert level, which makes use of technical terminology and concepts. An intermediate level is that of the board report and report to teachers. The level of sophistication selected for a particular report or presentation should be determined by the information needs of its audience.

Style. After determination of the appropriate content, format, and level of sophistication for the evaluation report, the actual report writing phase begins. A few basic principles of effective communication are outlined below:

- Organize the report in a simple and logical manner
- Use concise and convincing language
- Present data clearly and accurately
- Make your presentation interesting and attractive

Following an outline is crucial for good organization. Topic headings should be inserted in the text or presentation in order to keep the organizational structure clear. After the report is written, it should be reviewed to ensure that all paragraphs or sections under a certain heading are pertinent to the topic and are ordered in a logical sequence.

The use of concise language is recommended. Essential technical terms may be included when they will be understood. Unnecessarily long words and excessive jargon should be avoided. If possible, the report should be written in the active voice. Conclusions and recommendations should be precisely worded and action-oriented so that decision makers will be encouraged to receive them positively and to initiate implementation of recommendations.

Tables and graphs can be very helpful in interpreting information in the text and vice versa, but tables of unwieldy length or secondary importance should be included in an appendix. Data collection instruments should be reproduced in appendices, so that readers who are interested in the methodology used in the evaluation can refer to them.

An interesting, attractive presentation is important for all audiences, but gimmicks such as novelty typefaces or odd-sized paper should be avoided.

Dissemination plan. Evaluation results should almost invariably be distributed to certain administrative and educational personnel and advisory group members. It may also be appropriate to attach a copy of the evaluation summary to an annual report to the State Department of Education. Individuals who have been involved in designing and conducting the study or in providing data to evaluators should also have an opportunity to examine results. The general publicity value of curriculum evaluations is also high and should be realized by disseminating positive summary information to the media.

Thus, the curriculum specialist may write a detailed written report for fellow educators, give an oral or audio-visual presentation to the PTA, and prepare a press release for the local paper. In general, the wide distribution of results, which depends both on use of a variety of formats and the production of numerous copies, will increase the study visibility and improve the likelihood of implementation of study recommendations. Besides all the decisions already mentioned, the curriculum specialist should determine when various reports must be completed and how many report copies should be duplicated.

Individual Study Activities

1. For a further discussion of methods for drawing conclusions from follow-up studies and of strategies for preparing evaluation reports, read pages 381-396 in Wentling, T. L. Evaluating occupational education and training programs. Boston, MA: Allyn and Bacon, 1980.

2. Write an agenda for a group meeting being planned to draw conclusions and recommendations from curriculum evaluation results. List five activities for the group and the products that will result from each.

3. Locate a curriculum evaluation report in ERIC or use one with which you are familiar. Compare the report to the Outline for the Curriculum Evaluation Summary Report, Figure 8 of this module.

   Note any important information that is missing from the report or any suggested changes in organization.

4. List eight factors to be considered in assuring effective communication of follow-up findings. Write a brief statement on the importance of each factor.

Discussion Questions

1. Assume you are planning the following reports of a recently completed evaluation of a carpentry curriculum.

   - A one-page flier to parents
   - A four-page summary to teachers

   Using the major sections of the Outline for the Curriculum Evaluation Summary Report, Figure 8 of this module, determine:

   a. the content elements of the outline you will include in each report;

   b. the amount of space (in paragraphs) you will devote to each content element (assume four paragraphs per page); and

   c. how you will organize the content of each report.

   Be sure you do not go over your page limitation.

2. Now suppose you want to communicate the results of the evaluation of the carpentry curriculum to three other audiences.

   - District-level administrators and evaluation staff
   - Principals and counselors
   - Graduates of the carpentry program and their employers

   In columns on a chalkboard, list for each audience above the following characteristics of the strategy (or strategies) you select.

   a. Format

   b. Level of sophistication

   c. Length

Group Activity

1. The data for this activity were collected as part of a six-month follow-up study of the graduates of a high school secretarial program. The number of graduates in this particular class was 45. By phoning the few students who did not return the mailed questionnaire, a 100% response was secured. The objective of this part of the study was to determine how well various areas of the curriculum prepared students for their secretarial jobs.

   In this activity you will prepare data summaries for items on the secretarial questionnaire, and then draw conclusions and make recommendations based on the evaluation findings.

   a. As a group, choose an evaluation director to preside over the group. Together, plan how to group data for summary presentations (e.g., presenting data from several items in one figure) and decide which types of data analysis and presentations are appropriate for each set of data (tables of percentages, bar graphs of average ratings, etc.). Assign an individual to prepare each data presentation. The group should review all data presentations and suggest revisions as needed.

   b. As a group, choose a scribe to record conclusions and recommendations. The group should study the data summaries and develop conclusions and recommendations

according to the steps outlined in the module (listing conclusions; choosing the best conclusions; listing recommendations; and choosing the best recommendations). Recommendations should be directed toward improving the secretarial curriculum.

c. Form a sub-committee composed of persons who did not prepare data summaries to write a summary of the conclusions and recommendations developed in the meeting, based on the notes taken during the session. When the summary is presented to the full committee, it should be revised as appropriate so that it represents a consensus of committee opinion.

Excerpt from a Follow-Up Questionnaire
Sent to Secretarial Program Graduates
(N = 34)

C. PAST SECRETARIAL TRAINING

17. In the following areas, how would you rate your high school training in terms of preparing you for your secretarial job(s)?

		In this area, my high school training was:				
		Poor	Average	Above Average	Outstanding	Does not apply
Job know-how, knowledge, and skills:						
1	Typewriting	0	7	16	11	0
2	Shorthand	3	14	17	0	0
3	Record Keeping	0	30	4	0	0
4	Filing	0	2	11	21	0
5	Proofreading	0	24	10	0	0
6	Spelling	7	20	7	0	0
7	Punctuation	1	12	13	8	0
8	Arithmetic	1	19	12	2	0
Use of tools and equipment:						
9	Machine duplication	0	0	0	0	5
10	Machine transcribing	5	19	10	0	0
11	Office telephone	0	2	26	6	0
12	Adding machines	0	6	25	3	0
13	Key punch	0	15	11	1	7

18. If you have held a job in the secretarial field since leaving the program, how would you classify the quality of your training in preparing you for the job?

11	Outstanding
16	Above average
6	Average
1	Fair
0	Poor

19. What suggestions do you have for improving the secretarial program? (Comments summarized below)

7	Obtain more modern typewriters
4	Place more emphasis on speed in shorthand
3	Teach speedwriting instead of conventional shorthand
3	Provide more practice in machine and shorthand transcription
2	Give more practical experience in use of business English

Summary

Follow-up studies of former students and their employers contribute to a curriculum evaluation by providing information on the long-term effects of the curriculum on the knowledge and performance of students. This information can be used with information on short-term curriculum outcomes to improve the curriculum or judge its worth.

Many types of decisions must be made in planning for a follow-up evaluation. Initial planning tasks include convening a meeting of selected individuals, choosing an evaluation director, and setting the scope of the study. Once the specific vocational curriculum to be evaluated has been determined and the population of respondents has been clearly identified, the general goal of the follow-up study and its primary and subordinate objectives can be listed.

A work plan can then be prepared. The work plan documents the goal, objectives, tasks, and products of the study as well as the schedule, personnel, and necessary resources. The work plan should also specify whether personal interviews, telephone interviews, or mailed questionnaires will be used to collect data.

When conducting a follow-up study, the curriculum specialist will need to select or develop data collection instruments; select the study sample; orient data collection staff; and collect, process, analyze, and display the data.

In order for information resulting from any type of evaluation to be useful to decision makers, it must be effectively interpreted and commmunicated. A group process is valuable for drawing conclusions and recommendations from evaluation findings. Conclusions and recommendations should be presented in evaluation reports that discuss the purpose of the evaluation, the curriculum being evaluated, the evaluation design and methodology, and the evaluation findings.

The content, format, and style of the report(s) should be adjusted to match the information needs and interests of the target audience. Widespread dissemination of evaluation results will improve the likelihood of implementation of study findings.

APPENDICES

Study Activity Responses

The answers that follow will give you an idea of the type of responses expected. Use them as a study tool if you wish.

GOAL 1

Individual Study Activities

1. See Wentling, T. L. Evaluating occupational education and training programs.

2. a. Representatives of these groups should be invited:

   - school administration
   - PTA advisory committee members
   - PTA program teachers
   - current PTA students
   - guidance personnel

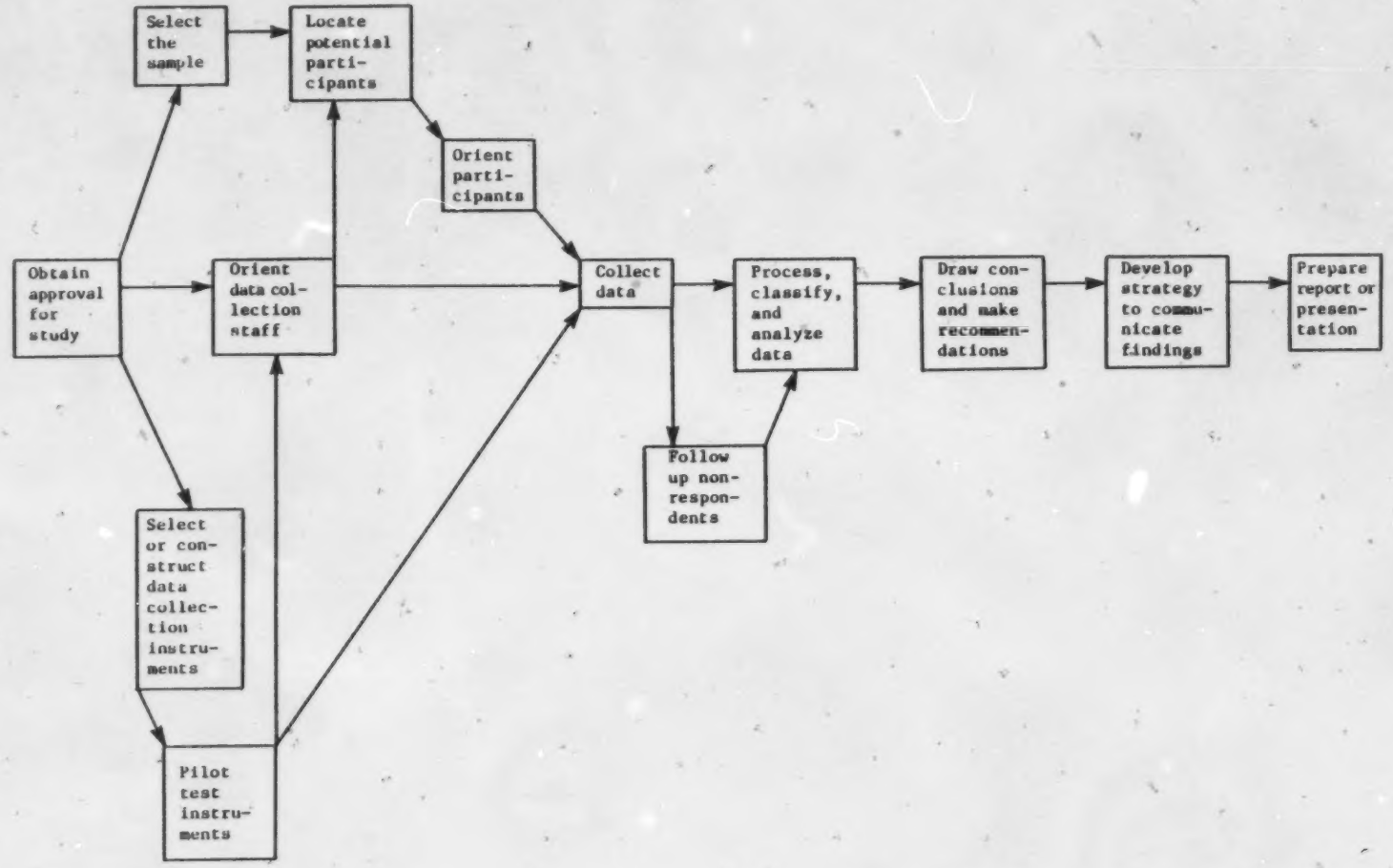
   Having a variety of viewpoints represented at the planning meeting will help ensure that the resulting follow-up study will collect data to address all significant information needs and evaluation questions.

   b. Decisions that should be made during the planning meeting include:

   - Who will be the evaluation director?
   - Which PTA curriculum (what year) will be evaluated?
   - Which former students (graduates, dropouts, etc.) will be contacted?
   - Will both employers and former students be contacted?
   - What will be the general goal of the study?

   The evaluation director should not expect primary and subordinate objectives to be written during the first meeting of the planning group. However, this group should review and help revise the lists of objectives, either individually or at another meeting.

3. Your flow diagram should look something like the one that follows. Make sure you have included each of the tasks.



Flow Diagram of Follow-Up Tasks

4. 1. T

2. T

3. T

4. F

5. T

6. T

7. T

8. T

Discussion Questions

1. The response to this question will depend on your personal experiences.

2. The response to this question will depend on your personal experiences.

GOAL 2

Individual Study Activities

1. See Wentling, T. L. Evaluating occupational education and training programs.

2. 1. T

2. F

3. F

4. F

5. T

6. F

3. 1. E

2. G

3. I, K

4. L, A, B, J*

5. F, D

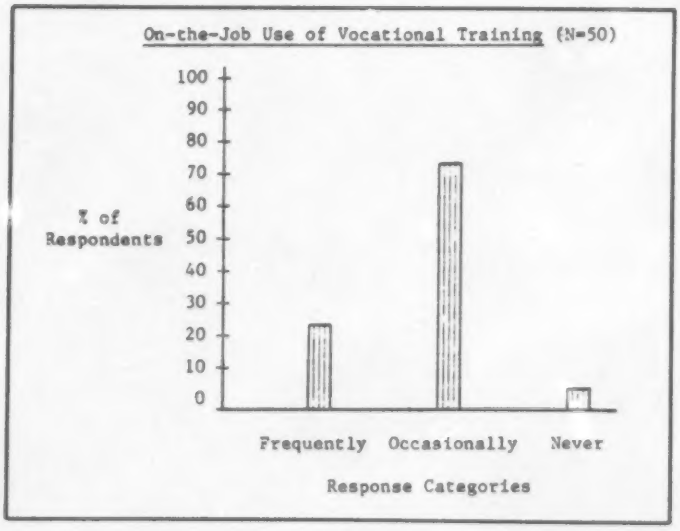
6. C, H

4. Data summarized as a table

On-the-Job Use of Vocational Training (N=50)

Response Categories	% of Respondents
Frequently	22
Occasionally	72
Never	6

Data summarized as a figure



* In this example, a sample of vocational graduates was first identified. The former students were then contacted and asked to provide the names and addresses of their employers and permission to contact them.

Discussion Question Responses

1. State and local follow-up studies are similar in that both are often designed to document that vocational students have obtained jobs in their field (student follow-up) and are performing well in these jobs (employer follow-up). The purpose of federally mandated follow-ups, however, is to justify past expenditures of federal money on state programs and to provide a rationale for continued funding. Hence, target populations are large and diverse (e.g., graduates from all types of vocational programs in the state) and findings stress quantifiable outcomes (e.g., numbers of persons obtaining jobs in their fields, wages received, and rates of job advancement).

   Persons conducting local follow-ups, on the other hand, often seek to assess in greater detail the work histories and performance of students of a smaller target population (e.g., all graduates of a local electronics program), for the purpose of making specific improvements in the local educational system. Data on educational means of attaining job outcomes are sought (e.g., student or employer opinions of curricula, facilities, instruction, and guidance/placement services).

   Items collecting information on the job history may be identical on state and local instruments. However, since findings of local studies will result in specific remedial actions on the curriculum level, local follow-up instruments generally will elicit more detailed information regarding the perceived success of a course in preparing students for work and regarding the actual performance of students on the job.

2.a.

Coverage of Objectives and Organization of Items

Primary Objectives*	Secondary Objectives	Related Items	Additional Items Needed	Revised Order of Items
To determine whether voc ed graduates are obtaining jobs in their field of training	1. Are they employed? Full-time or part-time?	2,8	In #2, expand option "not employed by choice" to elicit reason (e.g., handicapped, housewife)	2 3 4
	2. Are they employed in their field of training?	5,9,10, 13,14		5 6 7 8
	3. What are their job titles and work duties?	5	Add item #19: "What was your field of vocational training?"	9 Work 10 history 13
	4. What wages are they receiving?	6,7,8		14 15 16
	5. Where are they employed?	3,4,15		
	6. How did they obtain their jobs?	10,16		
To determine whether voc ed graduates are continuing their education		1	Add items #20: "What kind of education?" and #21: "Why enrolled?"	1 20 Education 21
	1. To determine why students chose their vocational programs	11	Expand options in #11 to include "I enrolled in the program for my own information" and "I enrolled to prepare for a job in the field."	19 Secondary 11 voc ed
To determine value of vocational programs in preparing students for work	2. To measure graduates' technical skills	12A,12F		
	3. To measure graduates' academic skills	12B,12C, 12D	Item #19 (above) would enable evaluation of success of specific vocational programs	12 Program
	4. To measure graduates' interpersonal and general occupational skills	12E,12G, 12H,12I		
	5. To measure quality of instruction	12J,12K, 12L		
	6. To measure quality of equipment and facilities	12O,12P		
	7. To measure quality of guidance and placement services	12M,12N		
	8. To measure overall quality of program and inform school staff	12Q,17		17 Following up the survey
To obtain information for employer follow-up study		3,4,5,18		18

*Inferred from items

2. b. (1) Overall acceptability of instrument in meeting its objectives: The instrument is well-organized, meets its objectives adequately, has well-written items in a variety of formats, and is attractive and easy to use.

(2) Suitability of instrument for own study: The instrument is generally appropriate to the study target population and is suitable for use as a one-year mail follow-up.

The instrument, with the addition of item 19, "field of vocational education training," adequately meets objective #1 of the electronics graduates follow-up study (determining whether graduates are getting jobs in the electronics field). It also allows for collection of information on employers for concurrent administration of an employer questionnaire.

On objective #2 (judging the value and revising the curriculum), the instrument is weaker. Since it was designed to survey graduates of all types of programs, the items related to curriculum, while numerous, serve only for general assessment of a particular curriculum. More detailed assessment of the electronics curriculum could be achieved, however, by revising item #12 of the instrument. For example, item 12A, "chances to develop technical knowledge needed for work," could be expanded to read "chances to develop knowledge and skills in (a) using soldering tools, (b) operating drill press, (c) using oscilloscope, (d) installing, testing, and constructing PC boards, (e) using transistor/tube/instrument manuals," etc.

Also, the instrument could be easily processed by hand. To facilitate data processing, the format of items 8 and 9 could be changed to a multiple-choice format with each option containing a range of salaries or working hours (e.g., $3-4 per hour or 35-40 hours per week).

GOAL 3

Individual Study Activities

1. See Wentling, T. L. Evaluating occupational education and training programs.

2. • Activity: Discuss the background of the study and the specific tasks to be accomplished

   Product: Well-oriented evaluation committee members prepared to work

   • Activity: Formulate a list of conclusions

   Product: A draft list of positive conclusions and conclusions pointing out program deficiencies

   • Activity: Select the best conclusions and refine their wording

   Product: A refined list of clear, concise, significant, and valid conclusions that meet quality criteria

   • Activity: Formulate a list of recommendations

   Product: A draft list of recommendations phrased in action terms

   • Activity: Select the best recommendations and refine their wording

   Product: A refined list of high quality recommendations ranked in order of priority

3. Your response will depend on the report you locate.

4. Factors to be considered in preparing the evaluation report include the following:

   - Decisions to be made by the reader and data needed
   - Audience addressed
   - Resources available
   - Content of report
   - Format
   - Level of sophistication
   - Style
   - Dissemination plans

The logical end of a curriculum evaluation is the adoption of recommendations by appropriate educational personnel. Thus, it is important that the evaluation report concentrate on the decisions that need to be made as a result of the study and, specifically, on those decisions that will be made by the group receiving the report. In other words, the writer should know the audience he or she is addressing and the kind of information needed in order for this group to take responsible actions in improving the curriculum. If constraints in time, money, and staff--obvious important considerations in planning the elaborateness of the report--are recognized early, care can be taken to simplify format, level of sophistication, and dissemination plans without reducing content.

Report content should follow a basic outline for all audiences, since a certain logical flow of information is essential to all audiences. Content, however, can be treated to varying degrees of depth depending on the audience. Format should be decided on based on the audience to be addressed and the purpose of the report. Choosing an appropriate format (e.g., written, oral, or audiovisual) is important in order to maximize the audience's interest in the content.

Level of sophistication of terminology may vary from the expert to the lay level. Use of overly technical language in a report to a particular group may result in lack of interest in report findings and subsequent failure to implement recommendations.

Good style is not optional in any report. All reports should be well-organized, interesting, attractive, concise, convincing, and clear. Dissemination plans are important to ensure that various groups obtain needed information that will enable them to take certain actions in response to evaluation findings.

Discussion Question Responses

1. Parents will most want to know whether the curriculum was effective and its benefits to their children. In a one-page flier you should devote one paragraph to the purpose of the evaluation, description of the curriculum, and evaluation design and methodology; two paragraphs to the evaluation findings; and one paragraph to conclusions and recommendations. These topics should be discussed in this order.

Teachers will most want to know about recommended changes in the curriculum and the findings that support the recommendations. One paragraph should be devoted to the purpose of the evaluation. A lengthy description of the curriculum is not necessary; one paragraph will do. Two paragraphs should be used to describe the evaluation design and methodology. This would complete the first page of the report. The remaining three pages should be assigned to findings, conclusions, and recommendations. It would be advisable to arrange the text so that supporting data (findings) were discussed after each recommendation.

2.

Plan for Preparing and Disseminating Information
on an Evaluation of a Carpentry Curriculum

Target Audience	Format	Level of Sophistication	Length
1. District level administrators and evaluation staff	Written report and Executive Summary	Expert "	15-20 pages 5 pages
2. Principals and counselors	Oral presentation accompanied by Written report	Board "	1 hour (discussion to follow) 5 pages
3. Graduates of the carpentry program and their employers	Newspaper article	Lay	5 paragraphs

Self-Check

GOAL 1

1. State the purpose for conducting a follow-up study as part of a curriculum evaluation.

2. List the three steps in the process of establishing the objectives of a particular follow-up evaluation.

3. List the six components of an evaluation study work plan.

4. Give two reasons why the personal interview technique may be valuable in surveying employers of vocational graduates.

GOAL 2

1. In selecting items to be included in a data collection instrument, the curriculum specialist should determine whether they pertain to the _____.

2. List at least five criteria for evaluating existing data collection instruments for possible use in a student follow-up study.

3. List at least four guidelines for developing a mail questionnaire that will help to ensure a high response rate from participants.

4. In conducting a mail survey, which of the following data collection schedules would be most appropriate?

   a. A single mailing of the questionnaire

   b. A single mailing, then phone calls to nonrespondents

   c. Two mailings

   d. Two mailings, then phone calls to nonrespondents

   e. Three or more mailings

5. List four decisions that must be made in developing a data analysis plan.

GOAL 3

1. List five steps involved in the evaluation committee approach to interpreting results of follow-up studies.

2. List at least five criteria to be used in developing a final set of conclusions based on follow-up data.

3. Before sections discussing the research design and methodology in an evaluation report, sections should appear describing the _____ and the _____ _____.

4. If report preparation funds are limited, the report format that probably should be ruled out first is the:

   a. written report

   b. oral presentation

   c. audiovisual presentation

   d. journal article

5. Read the following examples of inappropriate behaviors by report writers and indicate the kind of error made in each situation (e.g., poor choice of audience).

Behavior	Kind of Error
a. Developing a newspaper article to inform school statisticians of study findings	_____
b. In a brochure to parents, "refuting the hypothesis" of the study by use of "inferential statistics"	_____
c. Omitting information regarding problems of data collection from a report to evaluation experts	_____
d. Presenting information to parents about various sampling options considered in the study	_____
e. Placing all tables and figures in the appendix of a written report	_____

Self-Check Responses

The answers that follow will give you an idea of the type of response expected. Use them as a study tool if you wish.

GOAL 1

1. To judge the value of the curriculum in producing long-term outcomes and to alter it as needed

2.
   - Convene a planning meeting and select an evaluation director
   - Define the scope of the study
   - Write the general goal of the follow-up and list primary and subordinate objectives

3.
   - Study goals and objectives
   - Tasks and subtasks
   - Products
   - Completion dates
   - Individuals responsible
   - Resources needed

4.
   - In-depth information regarding employers' perceptions of graduates' job performance and recommendations for curriculum revision may be obtained.
   - Personal contact with employers may also serve to promote job placement of additional vocational graduates.

GOAL 2

1. Pre-established goals and objectives of the study

2. Any five of the following criteria are acceptable:
   - Is it readily available and inexpensive?
   - Is it directed at the appropriate target population?

- Is it directed at the appropriate goals and objectives?
- Is it designed for the appropriate time frame and method of data collection?
- Is item format appropriate and style clear and concise?
- Can it be administered in a reasonable amount of time?
- Can data be processed easily?
- Is the instrument reliable?
- Is the instrument valid?

3. Any four of the following responses are acceptable:

   - Word items clearly to avoid confusion.
   - Provide clear instructions on how to respond to items.
   - Vary item format to enhance interest.
   - Avoid asking for unnecessary information or information that could easily be obtained in another way. (Keep questionnaire short!)
   - Avoid asking confidential or sensitive questions.
   - Use open-ended items sparingly. Where possible, use multiple-choice items or other item formats where options are provided and respondents must simply check the preferred one.
   - Design the questionnaire to have an orderly layout and attractive appearance (e.g., use colored paper).

4. d

5.
   - Whether data should be processed by subpopulations (male versus female, graduates versus dropouts, etc.)
   - Which items are related in content and should be analyzed together
   - What kinds of data analyses should be performed on data
   - How data summaries should be presented

GOAL 3

1. • Discuss background of the study and the task to be accomplished by the committee.

   • Formulate a list of all possible conclusions.

   • Select the best conclusions and refine their wording.

   • Formulate a list of all possible recommendations.

   • Select the best recommendations and refine their wording.

2. Any five of the following criteria are acceptable:

   • Is each conclusion compatible with a major study objective?

   • Is there sufficient evidence to support each conclusion?

   • Does each conclusion represent the best possible interpretation of the data?

   • Does each conclusion reflect the consensus of the group?

   • Is the wording of each conclusion precise and curriculum-oriented?

   • Does the set of conclusions comprehensively interpret all data collected?

3. ...<u>purpose of the evaluation</u> and the <u>curriculum being evaluated</u>

4. c

5. a. inappropriate report format

   b. wrong level of sophistication (too technical)

   d. inadequate content

   d. wrong audience

   e. poor style

Recommended References

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VECS Module Titles

Module 1: Vocational Educators and Curriculum Management

Module 2: The Scope of Vocational Education

Module 3: Organization of Vocational Education

Module 4: Legislative Mandates for Vocational Education

Module 5: Priorities in Vocational Education

Module 6: Vocational Education for Students with Special Needs

Module 7: Vocational Needs Assessment and Curriculum Development

Module 8: Conducting Task Analyses and Developing Instructional Objectives

Module 9: Selecting Instructional Strategies and Assessing Student Achievement

Module 10: Relating Learning Differences and Instructional Methods

Module 11: Selecting and Preparing Instructional Materials

Module 12: Evaluating Vocational Education Curricula

Module 13: Conducting Follow-Up Studies and Communicating Evaluation Results

Module 14: Managing Vocational Education Programs

Module 15: Preparing for Curriculum Change

Module 16: Staff Development